STAT

September 1, 1970

Ref: W. O. 6847
~~Contract~~ 50048
Report

To: U. S. Government

STAT From: [redacted]

Mailing Address

STAT [redacted]

STAT Subject: [redacted]
Improved Lamp Performance

Dear George:

Enclosed are four copies of the Monthly Technical Report No. 3 on the subject contract. One copy has been forwarded directly to the Contracting Officer.

Very truly yours,

[redacted] STAT

WAS/ls

Enc. (4)

Approved For Release 2005/02/17 : CIA-RDP78B04770A001100080010-2

STAT

September 1, 1970

Ref: W. O. 6847

MONTHLY TECHNICAL REPORT #3

STAT

Improved Lamp Performance

1. Activity

1.1 Luminous grids

Tests on luminous tubes with special phosphors were reported last period. A modified "Sylvania Sign White 5500" Cold Light by Mervap showed about 10% higher efficiency. The cost differential is minor and thus the phosphor is a candidate for use where increased lamp brightness is important. This item of investigation is complete and no further work will be done on it.

A special grid was fabricated for the purpose of minimizing brightness fall off at the edges of the illuminated area. The center portion of the grid was identical to standard grids and used 10mm diameter luminous tubing spaced 3/4 inch center to center. The outer strands of the grid (i.e. those adjacent to the four edges of the illuminated area were raised one diameter and were made of 8mm diameter luminous tubing. Performance was compared to that of a standard grid of identical geometry but using 10mm diameter luminous tubing throughout.

Preliminary tests show that at the edges of the illuminated area, there was no perceptible fall off in brightness with the special grid. With the standard grid, the fall off was 12% to 15%. At the extreme corners of the illuminated area the fall off for the special grid averaged 6¢ and for the standard grid it averaged 17%. The production quantity cost of the special grid is little if any different than that of the standard grid. Further uniformity tests will be run on the grids. This appears to be a fruitful technique for improving uniformity.

Last period we reported preliminary results of tests of four grids at several partial pressures and additive gas mixtures. Three additional grids have been tested and preliminary data are included herein. We cannot draw conclusions from this data. Further testing is required in which some control is established on the grid temperature. Further work on this item will henceforth be reported in the next section "Lamp Box".

1.2 Lamp Box

To establish heat sink and ventilation pattern requirements, tests were made to determine optimum temperature of the luminous grid for both high and low intensity. A temperature controlled base plate was placed in contact with the grid in the lamp box. At high intensity (2500 to 3000 ft. lamberts) performance was degraded when base plate temperature exceeded 95°F. Some small improvement in performance was obtained when the base plate temperature was reduced to 90°F. At low intensity (25 to 50 foot lamberts) performance was degraded when base plate temperature went below 90°F. Performance was improved when the base plate temperature was increased to 120°F.

For temperature control, the base plate was cooled by a whisper fan and heated by resistors. Further work will be in this area in the next period. No further work was done on high efficiency reflectors. The standard design boxes were used for the uniformity tests.

1.3 Diffuser

Work on the diffuser was completed and previously reported. No further work was done.

1.4 Dimmer

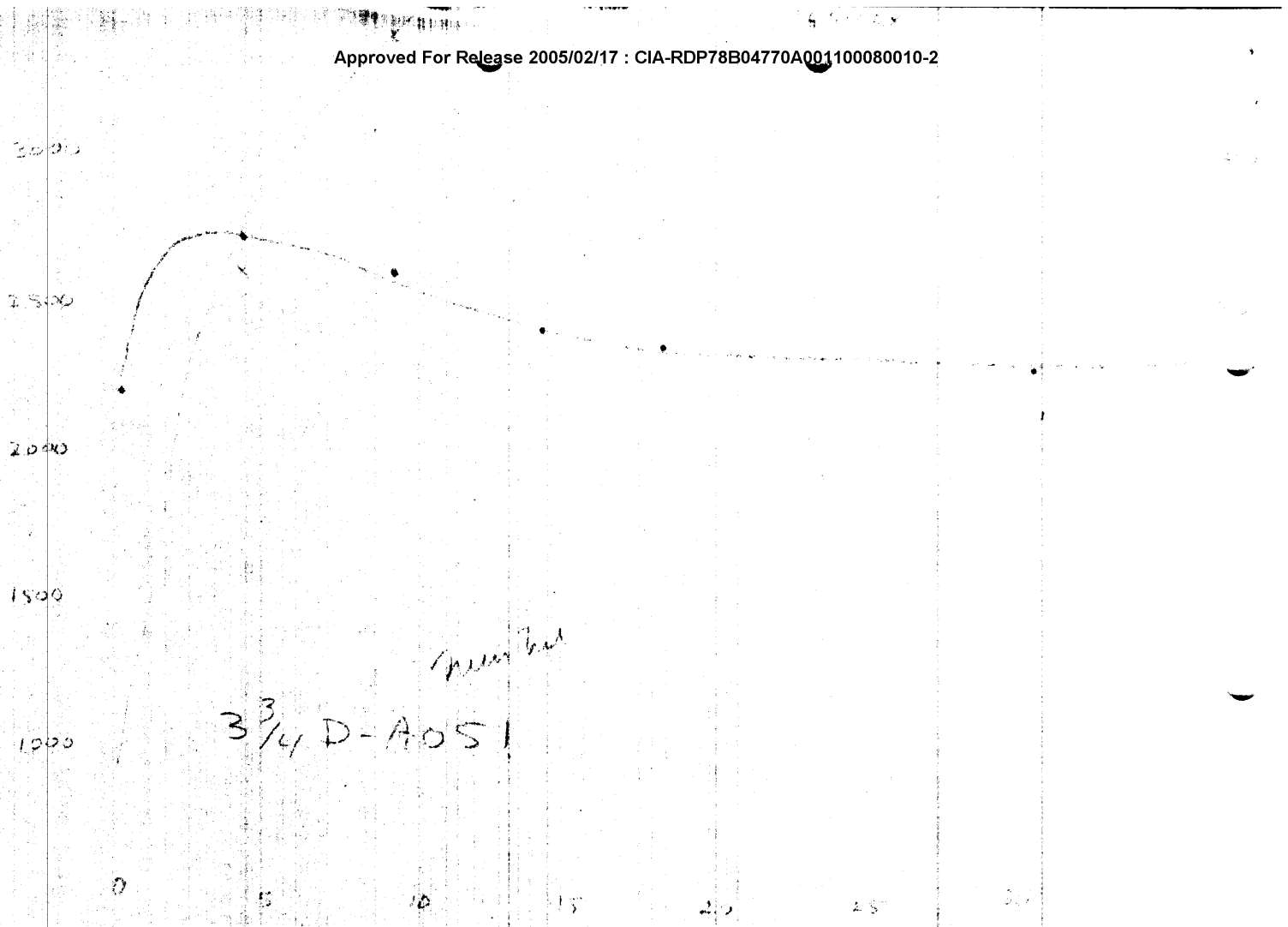
Work on the dimmer was completed and previously reported. No further work was done.

1.5 Transformer

No standard commercial high frequency transformers have been found which are suitable for use as luminous tube transformers. Work on this item is continuing.

2. PlannedActivity

Further work will be done on lamp boxes and transformers. Balance of the work is complete.



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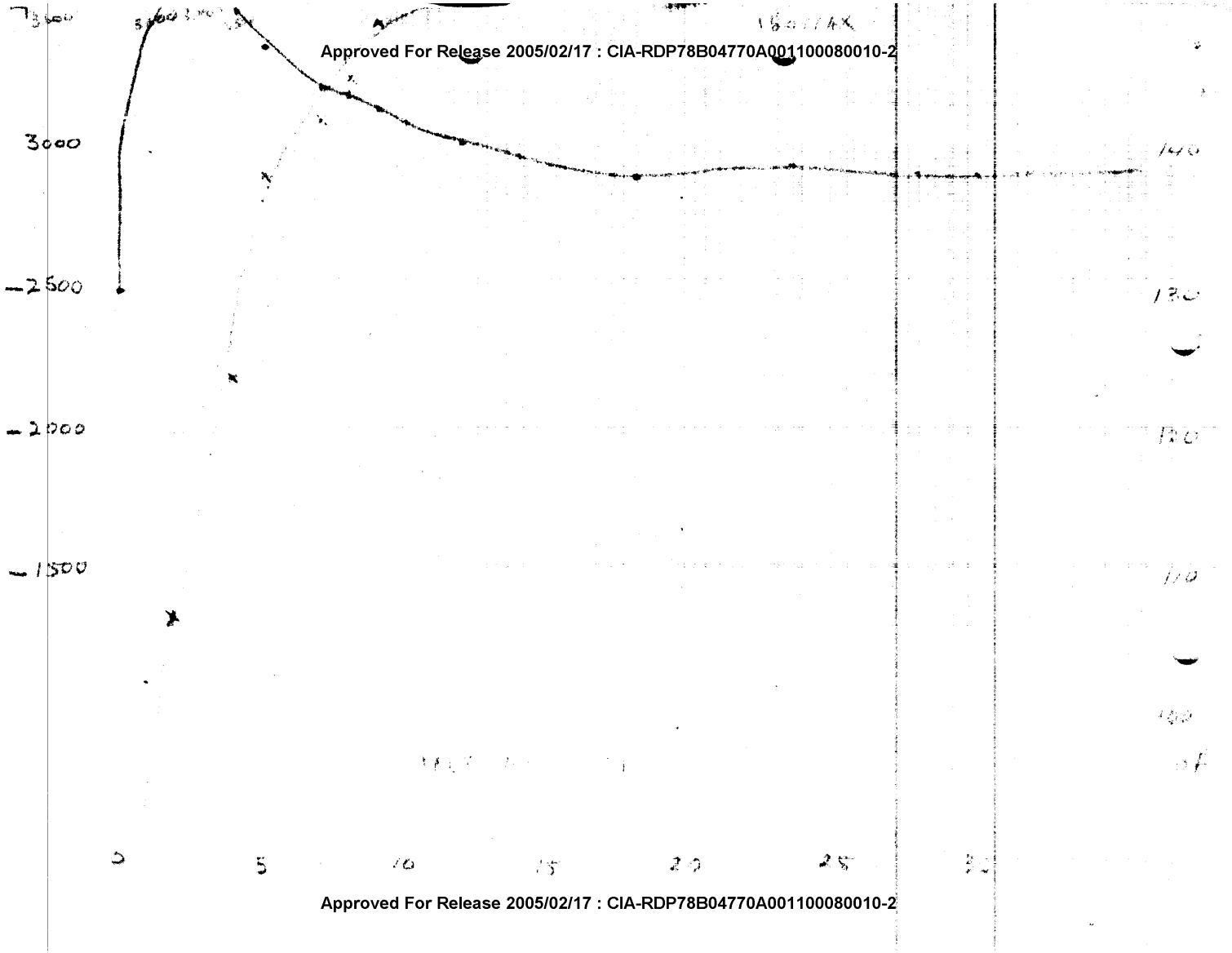

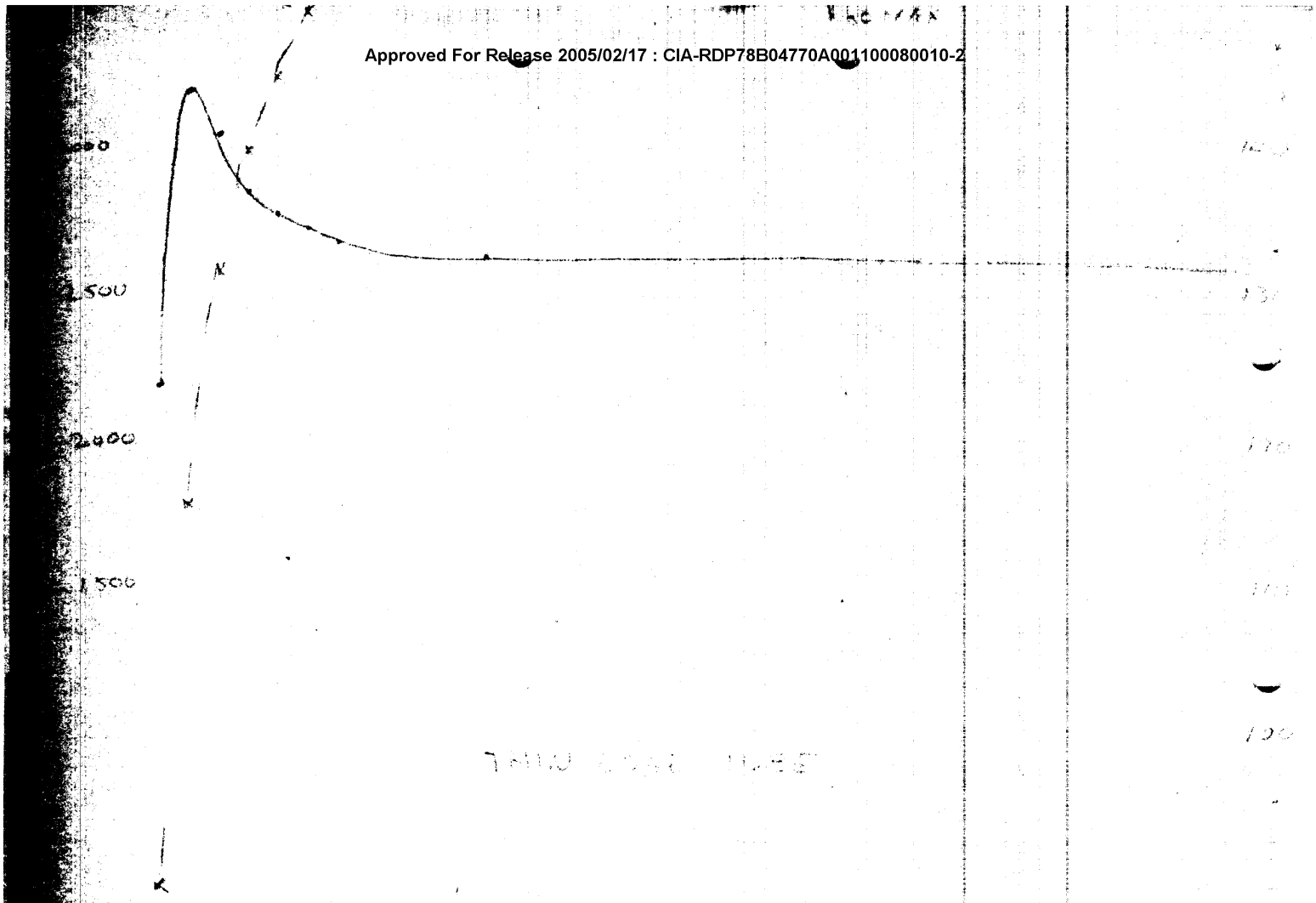

3. Other Comments

An extension of the completion date from 8 Sept 1970 to 8 October 1970 was requested and received.

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50048

August 31, 1970

Ref: W. O. 6847

INVOICE NO. 68095-3

For Services Rendered on [redacted] STAT

STAT From: [redacted]

Mailing Address:

STAT [redacted]

To: United States Government

Pay Period: 8/2/70 - 8/22/70

Services Rendered:

STAT [redacted]

Funding Status:

STAT [redacted]

[redacted] STAT

Received and Accepted:

STAT [redacted]

Technical Representative
of Contracting Officer